

## Abstract

5 A low power IF strip architecture suitable for Zero-IF (ZIF) or low-IF (LIF) radio  
receivers for filtering and amplifying a received signal. The apparatus includes a  
plurality of sequentially connected complex filter/amplifier stages. Each stage includes  
a complex filter having one or more poles and an automatic gain controlled amplifier  
(AGC). Each AGC may be feedback or feedforward with fixed minimum and maximum  
gains. Each stage further includes a control circuit that produces a gain control signal for  
10 controlling the amplifier gain within the fixed minimum and maximum gains as a  
function of a projected amplitude level. The received signal passes through multiple  
stages of filtering and controlled amplification to attenuate the interfering signal and  
amplify the desired signal. This is done at a restricted level in each stage such that the  
circuits in the stages operate at efficient power saving levels. The individual gain control  
15 signals from each stage are summed in a received signal strength indicator to provide the  
overall gain of the apparatus. The overall gain when taken with the amplitude of the  
apparatus output signal determines the original strength of the desired received signal.

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